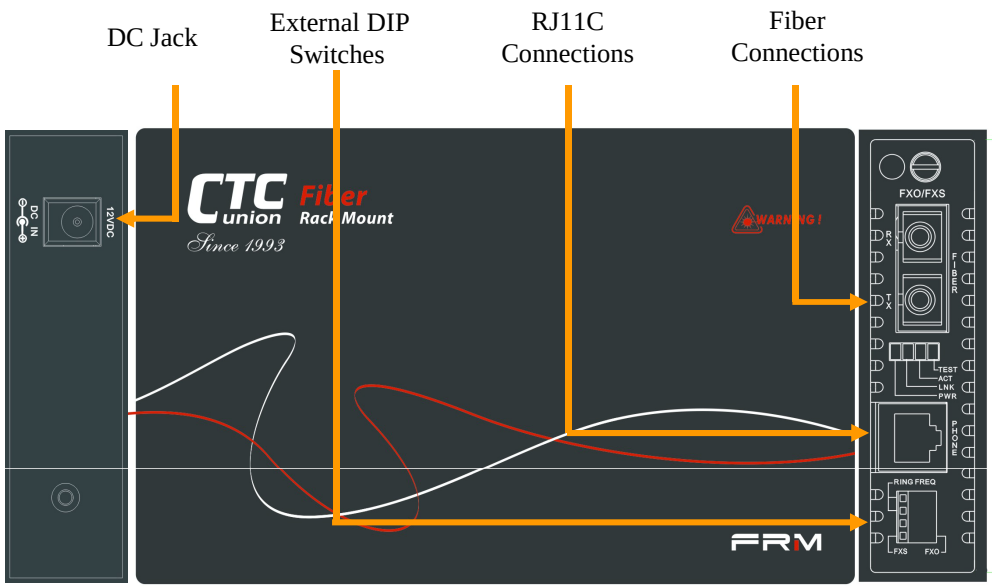
Installation Instructions for FRM220-FXO/FXS
FXO/FXS POTS Over Fiber Optic
Slide-in-Module Media Converter

Description

CTC Union's FRM220-FXO/FXS POTS over fiber media converter connects central-office voice grade signal to distant POTS (Plain Old Telephone Service) equipment using standard telephone signaling. It can extend, over fiber, the distance between two voice path communication devices by up to 120km using single mode fiber.
The FRM220-FXO/FXS provides audio transmission, caller ID, ringing at the distant end and automatic ring down. Two units are required to implement an end to end system. The RJ-11 connector provides the electrical interface between the media converter and the telephone device or PSTN.
The FRM220-FXO/FXS is designed to be installed in FRM220-CH20 (20 slots Chassis) for CO side or installed in FRM220-CH01(1 slot Chassis) for CPE stand-alone.



General Specifications

Environment
- Operating Temperature : 0 - 50 ℃
- Storage Temperature : -10 ~ 60 ℃
- Humidity : 5 ~ 90% non condensing

Power
- DC +12V / 800mA input
- Power Consumption : 5 W

Dimension & Weight
- 88mm x 154mm x 24mm
(W x D x H)
- Weight : 450g

Technical Specifications

Copper Connector

FXO/FXS :	Selectable
Phone Connector :	RJ-11C

FXO Mode

Impedance :	600 ohm
Coding :	16 bits linear
Loop Current :	10 ~ 100mA
Ring Frequency :	Acceptable 20 ~ 55Hz
Insertion Loss :	0.0± 1.0dB at 1000Hz

FXS Mode

Impedance :	600 ohm
Coding :	16 bits linear
Dial :	DTMF and Pulse Dial
Battery Source :	48VDC ± 4V
Ringing Waveform :	Sine wave
Ringing Supply :	60Vrms± 10%
Ring Frequency :	20/25/30/35/40/45/50/55 Hz selectable
Ring Cadence :	FXS to FXS : On / 1 second, Off / 2 second FXO to FXS : Reproduces the cadence of FXO
Insertion Loss :	0.0± 1.0 dB at 1000Hz
REN:	4.0B (Ring Equivalence Number)

Fiber Optic Connectors

Two connectors are provided for fiber optic cable connection.
One is labeled "TX" for transmission of optical data, the other is labeled "RX" for reception of optical data.

DIP Switch Setting (for firmware version 3.03)

DIP SW State		Main Mode setting	DIP SW State		Sub-function
-1	-2		-3	-4	
OFF (1)	OFF (0)	**FXS Mode 20~35Hz**	OFF(1)	OFF(1)	Ring frequency, 20Hz
			ON(0)	OFF(1)	Ring frequency, 25Hz
			OFF(1)	ON(0)	Ring frequency, 30Hz
			ON(0)	ON(0)	Ring frequency, 35Hz
ON (0)	ON (1)	**FXS Mode 40~55Hz**	OFF(1)	OFF(1)	Ring frequency, 40Hz
			ON(0)	OFF(1)	Ring frequency, 45Hz
			OFF(1)	ON(0)	Ring frequency, 50Hz
			ON(0)	ON(0)	Ring frequency, 55Hz
ON (0)	OFF (0)	**FXO Mode**	OFF(1)	OFF(1)	Ring frequency, 20/25Hz
			ON(0)	OFF(1)	Ring frequency, 30/35Hz
			OFF(1)	ON(0)	Ring frequency, 40/45Hz
			ON(0)	ON(0)	Ring frequency, 50/55Hz
OFF (1)	ON (1)	**FXS leased line Mode**	OFF(1)	X	Master timing
			ON(0)	X	Slave timing
			X	OFF(1)	Leased line mode 1
			X	ON(0)	Leased line mode 2

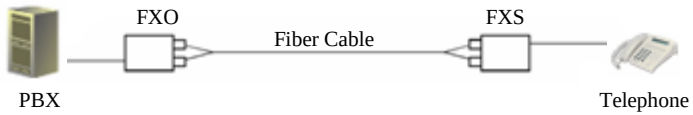
When installing with NMC in CH20, the NMC-R2 version must be 3.26 or above to manage these settings.

Installation

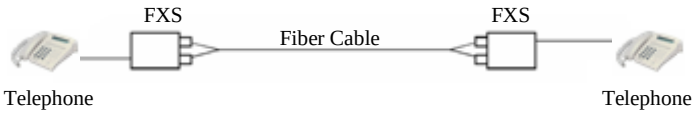
Connect the RJ-11 cable to the FRM220-FXO/FXS. The converter should be setup to operate in FXO or FXS mode and the fiber link will be indicated on the LED. Follow the connection examples below. Install the fiber converter with the DC power adapter provided (+12VDC, 800mA) and connect the adapter to an AC outlet.

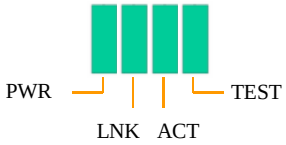
Connections

The following example illustrates the connection scheme when connecting PBX to telephone through the fiber converter.



The following example illustrates the Automatic Ring-Down connection scheme when connecting telephone to telephone through the fiber converter.





LED Indicators

LED	Function	State	Status
PWR	Power Indicator	Green	Converter has power.
		Off	Converter has no power.
LNK	Fiber Link	Green	The fiber link is ok.
		Off	No link or the link is faulty.
ACT	Phone Status	Green	Activity.
		Off	Idle.
		Flash	Ringing.
TEST	Test Status	Red	When in any loop back mode

Memo Note